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A posteriori error estimates in finite element exterior calculus.

We present residual-type a posteriori error estimates for the Hodge Laplace operator within the framework of finite element exterior calculus. The structure of the Hodge Laplace problem leads to some questions which have not been heavily considered in the literature before, especially adaptive approximation of harmonic forms and its effect on the overall error in approximating Hodge Laplace solutions. As a side benefit, we also translate common concepts from residual-type error estimation into the language of differential forms. (Received September 07, 2012)